STATE OF ALASKA

WILLIAM A. EGAN, GOVERNOR

Annual Performance Report for

SPORT FISH STUDIES

Rainbow Trout Life History Studies in Lower Talarik Creek - Kvichak Drainage

by

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RESEARCH PROJECT SEGMENT

State: ALASKA Name: Sport Fish Investigations of Alaska.

Project No.: F - 9 - 6

Study No.: G - II Study Title: SPORT FISH STUDIES

Job No.: G - II - E Job Title: Rainbow Trout Life History Studies in Lower Talarik Creek-Kvichak Drainage

Period Covered: July 1, 1973 to June 30, 1974.

ABSTRACT

The Lower Talarik Creek weir was reassembled and operated from May 4 through October 12, 1973. A total of 2,890 rainbow trout were captured and sampled during the season at the weir. Data collected from these fish included age, weight, length, and sex composition, plus migrational timing. Migration data was collected for other species found within the drainage.

An estimated 987+ rainbow trout spawned in Lower Talarik Creek during the spring of 1973. The spawning peak occurred May 10. Female spawners outnumbered males 3.5 to 1. Six hundred eighty-one (92.0%) of the 700 spawners aged were age VIII or older.

Two hundred and nineteen rainbow trout spawners were tagged on the Lower Talarik Creek spawning grounds during 1972. Twelve (5.5%) were recaptured in the stream as consecutive spawners during 1973.

Age-length data collected indicate male rainbow trout by age group attain slightly greater lengths than females.

An estimated 428 maturing rainbow trout comprised the Lower Talarik Creek fall upmigration.

A total of 2,425 rainbow trout were tagged in Lower Talarik Creek during 1973. Two hundred seventy-seven (11.4%) were recaptured prior to the termination of weir operations.

Creel census data collected indicate 381 angler days were expended during 1973. A total of 1,563 angler hours were spent to catch 964 rainbow trout. One hundred twenty-six rainbow trout were retained. Anglers using flies as terminal tackle caught 0.77 rainbow trout per hour, while anglers using lures caught 0.36.

RECOMMENDATIONS

1. Continue a basic life history study of rainbow trout in Lower Talarik Creek, a tributary to Lake Iliamna.

2. Determine the magnitude and impact of recreational fishing on rainbow trout stocks utilizing Lower Talarik Creek.

3. Determine whether correlations exist between the size of the sockeye salmon escapement entering Lake Iliamna and the numbers and condition of Lower Talarik Creek rainbow trout.

OBJECTIVES

1. Conduct a life history study of rainbow trout in Lower Talarik Creek, a tributary to Lake Iliamna.

2. Determine the magnitude and impact of recreational fishing on the rainbow trout stocks utilizing Lower Talarik Creek.

TECHNIQUES USED

A permanent 120-ft. structural steel weir with reversible 5/8 inch mesh metal screens was used to capture upmigrant and downmigrant rainbow trout at Lower Talarik Creek. The weir supported two traps: a 7-1/2 ft. x 8 ft. "wulf" type trap for downstream migrants, and a 5 ft. x 8 ft. fyke trap for upstream migrants.

Fish captured were sampled to determine their standard fork length, weight, sex, maturity, and general condition. Fork lengths were determined using rigid portable measuring boards and were recorded to the nearest millimeter. Weights were ascertained using a Chatillon 9 kilo autopsy scale (live weights).

Rainbow trout exceeding 300 mm in length were tagged with numbered brown FD-67 internal anchor tags (Floy Tag Company). The tags were inserted, using Dennison Mark II tagging guns, into the dorsal body musculature such that the anchor section of the tags lodged between consecutive pterygiophores. Rainbow trout less than 300 mm in length were tagged with yellow FTF-69 fingerling tags. These tags were secured by inserting a needle with elastic vinyl thread through the musculature beneath the anterior margin of the dorsal fin and tying the tag off externally.

The stage of maturity of rainbow trout captured was identified using the following subjective criteria if the fish was to be subsequently released (dead fish were autopsied):

Maturing

Male: Developing kype, abdominal contour full and round; ovipositor absent, discharge of milt in some cases, generally 400 mm+ in length.

Female: No indication of kype, head generally less elongate than a male's head, ovipositor visible in some cases, abdominal contour full and round, generally 400 mm+ in length.

This category is used during fall and winter to describe fish that would spawn the following spring.

Pre-spawner or ripe

Male: Fully developed kype; discharge of milt from anal vent; spawning coloration (reddish opercle, and side stripe, pronounced spotting), ovipositor absent, abdominal contour full and round.

Female: Kype absent, ovipositor distended, discharge of loose ripe eggs in some cases, spawning coloration, abdominal contour full and round.
This category is used to describe fish migrating to, or arriving at spawning areas during the spring.

Post spawner or spent

Male: Fully developed kype, slender, abdominal contour concave, slight discharge of watery milt in some cases if pressure applied to abdominal area, anal vent loose and tinted, scratches and lacerations on abdominal area, ventral and caudal fin margins may be frayed, spawning coloration.

Female: Kype absent, ovipositor distended and generally reddish in color, slender, abdominal contour concave, some retained eggs or fluid will be expelled if gentle pressure is applied to abdomen, digging scars and scratches ventrally and on sides, ventral and caudal fin margins frayed, spawning coloration.

This category is used to describe fish that have just spawned and are migrating off the spawning grounds, generally in May and June.

Non-spawner and immature

External sexual characteristics non-discernible. In most cases induced distention of ovipositor not possible, generally silvery coloration on larger

fish, parr marks visible on smaller fish, no discharge of eggs or milt upon gentle pressure being applied to abdominal area.

Category used to describe fish that would not or did not spawn during the present calendar year.

All rainbow trout passed through the weir from May 4 through June 1 and from September 1 through October 12 were sampled for scales. From June 2 through August 31 scales were removed from all rainbow trout spawners passed and from every twentieth non-spawner. Scale samples, selected for age determinations, were removed from the left dorsal margin between the lateral line and dorsal fin insertion of all non-tagged fish. Scales were selected from the right dorsal margin of previously tagged rainbow trout.

Scales were cleaned and mounted on numbered gum cards and impressions were made in 0.002 inch thick cellulose acetate cards (2.5 in. x 5 in.). Scale impressions were read to determine age, using a microprojector.

Ages of sampled rainbow trout were determined by counting annular rings from selected scales. Differences in the number of scale samples collected and the number of ages presented are due to characteristics of some scales (e.g., regenerate, damaged) that rendered them illegible for age determinations.

Spawning ground counts were obtained by ground level foot surveys.

Water temperatures were collected using a Taylor maximum-minimum registering thermometer submersed in the stream near the weir site.

Anglers were interviewed to determine creel information, effort, and gear preference. Creel census data gathered was expanded by month to determine "total estimated angler harvest and use" using the following ratio proportion formula:

$$\text{Angler Use} \quad \frac{\text{anglers checked}}{\text{angler hours checked}} = \frac{\text{anglers observed}}{\text{unknown (total angler hrs.)}}$$

$$\text{Angler Harvest:} \quad \frac{\text{anglers checked}}{\text{rainbow trout checked}} = \frac{\text{anglers observed}}{\text{unknown (total rainbow trout harvest).}}$$

Five types of gear used by sport fishermen at Lower Talarik Creek were identified and angler success using different gear types compared. For purposes of this comparison, flies and lures were defined as follows:

Flies - Terminal tackle constructed by methods known as fly tying, including nymphs, dry, wet, and streamer flies.

Lures - Terminal tackle other than flies (including spoons, spinners, jigs, plugs, and artificial bait).

All data collected were entered on Sport Fish Division field data collection forms (Figure 1). The data were subsequently key punched onto IBM computer cards for future computer analysis.

To provide a more in-depth analysis of the timing of rainbow trout activities at Lower Talarik Creek, the 1973 field season was divided into three periods. Period I extended from May 4 through June 30. Period II ran from July 1 through August 31, and Period III covered the interval September 1 through October 12.

Data collectors during 1973 were Al Paulson, Ron Kihle, Dale Peters, Randy Alvarez, Bob Yerkes, Richard Russell, and Don Siedelman.

FINDINGS

Rainbow Trout

Period I:

The weir was erected at Lower Talarik Creek, approximately 3/4 of a mile upstream from the stream outlet, and was considered operational on the morning of May 4, 1973.

A foot survey on April 20, of spawning areas in the west fork of Lower Talarik Creek established that rainbow trout, in limited numbers, were already engaged in spawning activities. Fourteen spawners were observed, with two pairs defending redd sites.

At the time the weir first became operational an upmigration of prespawn rainbow trout was in progress (Table 1). During the next 10 days, 238 (82.6%) of the 288 upmigrant spawners captured during Period I were passed. Foot survey counts indicated the peak of spawning occurred on May 10. Of 806 downmigrant spawners (most in post spawning condition) captured during Period I, 413 (51.2%) were passed during the ten day period following May 10 (Table 1).

Two hundred eighty-eight prespawners originally passed upstream, of which 107 were later recaptured as downstream migrants. A summary of the lapse time between the upmigration and the downmigration of these fish is presented in Table 2. The data indicates males spent an average of 20 days (questionable due to small sample size) on the spawning grounds, while females spent an average of 13 days (some of these fish may have been delayed slightly on the outmigration by the weir). The fate of the 181 rainbow trout originally passed upstream (288 minus 107) that were not subsequently captured as downstream migrants is unknown. Some of these were probably spawning mortalities, and evidence collected later in the year indicated that some rainbow trout spent the summer in the tributary lakes that feed the two forks of Lower Talarik Creek (Figure 2).

During Period I, 977 rainbow trout spawners (recaptures counted only once) were passed through the weir. The length frequency by sex of these spawners is presented in Table 3. Two hundred nineteen of these fish were males with

FIELD DATA COLLECTION FORM

SUMMARY OF MOST COMMONLY USED CODES
(Refer to B.D.P. System Instructions for a complete listing.)

1. SPECIES CODES

140 = Rockfish & Red Snapper	520 = Arctic char	584 = Arctic Cisco
200 = Halibut	530 = Dolly Varden	585 = Bering Cisco
410 = King Salmon	540 = Steelhead Trout	586 = Round Whitefish
420 = Red Salmon	541 = Rainbow Trout	587 = Pygmy Whitefish
421 = Kokanee	550 = Lake Trout	590 = Burbot
430 = Coho Salmon	555 = Brook Trout	610 = Arctic Grayling
440 = Pink Salmon	560 = Cutthroat Trout	630 = Blackfish
450 = Chum Salmon	570 = Sheefish	650 = Lake Chub
500 = Northern Pike	580 = Whitefish(general)	660 = Threespine Stickleback
511 = Smelt, Eulachon	581 = Broad Whitefish	710 = Sablefish
513 = Rainbow Smelt	582 = Humpback Whitefish	810 = Butter Clam
515 = Surf Smelt	583 = Least Cisco	830 = Razor Clam

2. CAPTURE METHOD CODES

1 = Gill Net	7 = Other Traps	13 = Shovel
2 = Electroshocking	8 = Dip Net	14 = Chemical Treatment
3 = Seine	9 = Hook & Line	15 = Explosives
4 = Weir Trap	10 = Trot Line	16 = Beach or Stream Dead
5 = Minnow Trap	11 = Fish Wheel	17 = Weir Screen Dead
6 = Fyke Net	12 = Spear	99 = All Other Methods

3. SEX CODES

Ø = Not checked	2 = Male
1 = Female	3 = Unknown

4. AGING DATA CODES

1 = Scale Sample	4 = Other Method	7 = Illegible
2 = Otolith Sample	5 = Inverted	8 = Missing
3 = Vertebral Cross-Section	6 = Regenerate	9 = Reabsorbed

5. AGE CLASS SYSTEM CODES

1 = European	2 = Gilbert-Rich	3 = Total Years

6. MATURITY CODES

Ø = Not checked	3 = Spawning	6 = Redeveloping (non-consecutive)
1 = Immature	4 = Post-Spawning	7 = Unknown
2 = Developing	5 = Redeveloping (consecutive)	

7. TAG COLOR CODES

1 = Brown	3 = Green	5 = Red	7 = Orange
2 = Yellow	4 = White	6 = Blue	8 = Gray

8. FIN CLIP/PUNCH CODES

1 = Left Ventral	6 = Both Ventral	11 = Left Opercular Cover Punch
2 = Right Ventral	7 = Adipose - Both Ventral	12 = Right Opercular Cover Punch
3 = Adipose	8 = Half Dorsal	13 = Two Upper Caudal Punches
4 = Adipose - Left Ventral	9 = Upper Caudal Lobe Punch	14 = Two Lower Caudal Punches
5 = Adipose - Right Ventral	10 = Lower Caudal Lobe Punch	

9. RECAPTURE CODES

Ø = No	1 = Yes

10. MIGRANT CODES

1 = Upstream Migrant	2 = Downstream Migrant

11. FATE OF FISH

1 = Killed	2 = Released Uninjured	3 = Released Injured

IMPORTANT NOTE: ALWAYS USE Ø FOR NUMERIC ZERO (O will be keypunched as alphabetic "o".)

STATE OF ALASKA

DEPARTMENT OF FISH AND GAME - SPORT FISH DIVISION

FIELD DATA COLLECTION FORM

Collected by ____________________ Page ________ of ________

Location ____________________ Project ____________________

	Data Collector	Date Mo	Date Da	Date Yr	Location	Acc. No.	Species Code	Capture Method	Fork Length (MM)	Total Length (MM)	Weight (GM)	Sex	Age	X Spawned	Aging Data	Age System	Maturity	Tag Number	Tag Color	Fin Clip	Recapture	Migrant	Fate of Fish	Census No.	Air Temp. (°C)	H_2O Temp. (°C)	H_2O Level (DM) or Depth (M)	Secchi Disk Reading (CM)	Optional Variables
1 1 X 1																													

TABLE 1. Movement of Rainbow Trout Spawners, Lower Talarik Creek Weir, May 4-June 30, 1973*.

Date	Migrants Upstream	Migrants Downstream	Date	Migrants Upstream	Migrants Downstream
5/ 4	10	1	6/ 3	-	1
5/ 5	11	6	6/ 4	2	8
5/ 6	5	4	6/ 5	1	7
5/ 7	21	8	6/ 6	-	8
5/ 8	48	7	6/ 7	-	13
5/ 9	54	23	6/ 8	-	8
5/10	56	4	6/ 9	-	3
5/11	17	45	6/10	1	6
5/12	9	14	6/11	-	5
5/13	5	44	6/12	-	4
5/14	-	13	6/13	1	4
5/15	2	64	6/14	-	14
5/16	-	81	6/15	-	9
5/17	-	26	6/16	-	5
5/18	5	11	6/17	-	-
5/19	2	19	6/18	-	3
5/20	6	96	6/19	-	6
5/21	2	20	6/20	-	1
5/22	2	17	6/21	-	5
5/23	3	27	6/22	1	2
5/24	3	1	6/23	-	7
5/25	2	35	6/24	-	4
5/26	3	38	6/25	-	2
5/27	2	20	6/26	-	3
5/28	-	3	6/27	-	5
5/29	2	5	6/28	-	1
5/30	-	24	6/29	-	1
5/31	4	-	6/30	-	-
6/ 1	7	13			
6/ 2	1	1	Total	288	806

* Recaptures counted only once in each direction.

TABLE 2. Elapse Time Between Upmigration (Ripe) and Downmigration (Spent) Rainbow Trout Spawners, Lower Talarik Creek Weir May 4-June 30, 1973.

No. of Days	Males	Females	Total
1- 5	2	2	4
6-10	3	55	58
11-15	2	15	17
16-20	1	6	7
21-25	-	8	8
26-30	-	2	2
31-35	2	1	3
36-40	-	3	3
41-45	-	3	3
46-50	1	-	1
51-55	1	-	1
Total	12	95	107
Range (days)	3-52	2-44	2-52
Mean Elapse Time (days)	20	13	11

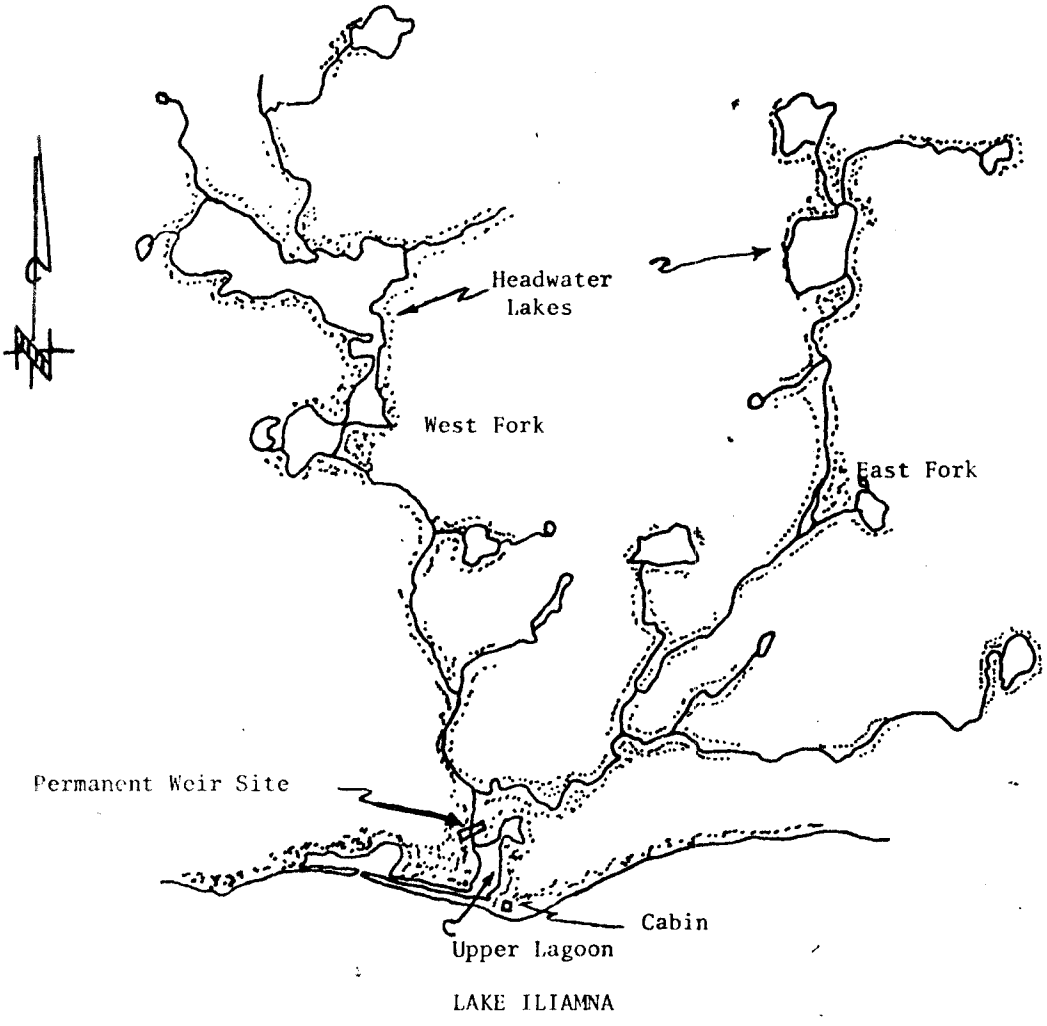

FIGURE 2. Rainbow Trout Research Site, Lower Talarik Creek, 1972.

TABLE 3. Length Frequency by Sex, Rainbow Trout Spawners, Lower Talarik Creek, May 4-June 30, 1973.

Length (mm)	Males	Females	Total
325-349		2	2
350-374		1	1
375-399	1	1	2
400-424	3	-	3
425-449	3	5	8
450-474	4	4	8
475-499	3	12	15
500-524	9	39	48
525-549	12	97	109
550-574	28	131	159
575-599	28	151	179
600-624	30	141	171
625-649	21	78	99
650-674	32	45	77
675-699	19	30	49
700-724	9	10	19
725-749	9	9	18
750-774	5	1	6
775-799	2	1	3
800-814	1	-	1
Total	219	758	977
Length Range (mm)	384-814	336-775	336-814
Mean Length (mm)	614	590	595

a mean length of 614 mm. Seven hundred fifty-eight were females with a mean length of 590 mm. Spawners ranged in length from 336-814 mm. The male-to-female ratio was 1 to 3.56.

The sex versus age of Lower Talarik Creek rainbow trout spawners is presented in Table 4. Seven hundred spawners had scales legible for age determinations. Male spawners ranged in age from VII-XII while females ranged in age from VII-XIII. Age groups VIII, IX, and X fish constituted 92.0% of the spawning population.

The mean weight versus age of rainbow trout spawners is presented in Table 5. Nineteen prespawn (ripe) males had a mean weight of 2.33 kg (5 lb. 2 oz.), while 137 post spawn (spent) males had a mean weight of 2.17 kg (4 lb. 12 oz.), a difference of 0.16 kg (6 oz.). One hundred sixty-seven prespawn females had a mean weight of 2.28 kg (5 lb.) while 439 post spawn females had a mean weight of 1.88 kg (4 lb. 2 oz.), a difference of 0.40 kg., (14 oz.). Mean weight for both males and females increased with age.

Further evidence pertaining to loss in body weight during spawning is presented in Table 6. One hundred five rainbow trout captured originally as upmigrant prespawners were recaptured subsequently as downmigrant postspawners. The average male body weight loss was 0.18 kg, while females lost 0.40 kg.

Spawning ground surveys indicate the numbers of rainbow trout spawners were nearly equally divided between the East and West forks of Lower Talarik Creek. On May 10, the peak of spawning, 380 spawners were observed in the West fork. A corresponding count of the East fork May 11-12 yielded 357 spawners.

Stream water temperatures at the peak of rainbow trout spawning reached 7° C. (44.6° F.), Table 7.

Twelve of the 219 rainbow trout spawners (5.5%) captured on the West fork spawning grounds during 1972 (Siedelman, Cunningham, Russell, 1973) were recaptured at the weir during Period I, 1973, as consecutive spawners. Of these, eight were females and four were males. Female consecutive spawners ranged in length from 518-691 mm. Male consecutive spawners ranged in length from 541-634 mm. Scales taken from these fish during 1973 indicate that five were age VIII, four were age IX, and one was age X.

Twenty-eight (14.3%) of the 196 maturing upmigrant rainbow trout tagged at the weir during the fall of 1972 were recaptured as spawners at the weir during Period I, 1973. When recaptured, three of these fish were in prespawning condition and 25 were in post spawning condition. Twelve were males and 16 were females. This data indicates some of (and perhaps all) the maturing fall fish overwinter in the stream or lakes in a maturing condition and spawn the following spring. The fate of the other 168 maturing fall fish (196 minus 28) is unknown.

The migration by day of juvenile and nonspawning rainbow trout during Period I is presented in Table 8. Downmigrants outnumbered upmigrants 478 to 87 (5.5 to 1). The downmigration appears to have occurred in spurts with five major peaks occurring during the 58-day period. Upmigration was sporadic.

TABLE 4. Age Frequency by Sex, Rainbow Trout Spawners, Lower Talarik Creek Weir, May 4-June 30, 1973.

Age Group	Males		Females		Total	
	No.	(%)	No.	(%)	No.	(%)
VI	-	-	1	(0.2)	1	(0.1)
VII	10	(6.6)	8	(1.5)	18	(2.6)
VIII	35	(23.2)	165	(30.1)	200	(28.6)
IX	47	(31.1)	240	(43.7)	287	(41.0)
X	47	(31.1)	110	(20.0)	157	(22.4)
XI	11	(7.3)	24	(4.4)	35	(5.0)
XII	1	(0.7)	-	-	1	(0.1)
XIII	-	-	1	(0.2)	1	0.1)
Total	151	(100.0)	549	(100.1)	700	(99.9)

TABLE 5. Mean Weight Frequency by Age and Sex of Rainbow Trout Spawners, Lower Talarik Creek, May 4-June 30, 1973.

	Age Group								
	VI	VII	VIII	IX	X	XI	XII	XIII	Totals
No. Ripe Males	--	1	4	6	6	2	-	--	19
Mean Weight (kg) Ripe Males	--	1.00	1.89	2.06	2.81	3.26	-	--	2.33
No. Ripe Females	--	2	56	81	25	2	-	1	167
Mean Weight (kg) Ripe Females	--	1.26	1.81	2.35	2.81	3.32	-	4.85	2.28
No. Spent Males	--	9	32	41	45	9	1	--	137
Mean Weight (kg) Spent Males	--	0.91	1.55	1.99	2.64	3.56	3.62	--	2.17
No. Spent Females	1	7	130	186	91	23	-	1	439
Mean Weight (kg) Spent Females	0.41	1.07	1.46	1.85	2.33	2.94	-	3.64	1.88

TABLE 6. Weight Change During Spawning, Rainbow Trout, Lower Talarik Creek, May 4-June 30, 1973.

Weight Change (kg)	Males	Females	Total	(% of Total)
Gained weight	2	1	3	(2.9)
Weight unchanged	1	1	2	(1.9)
Lost 0.00-0.09	2	4	6	(5.7)
0.10-0.19	2	4	6	(5.7)
0.20-0.29	1	11	12	(11.4)
0.30-0.39	-	29	29	(27.6)
0.40-0.49	1	20	21	(20.0)
0.50-0.59	-	15	15	14.3)
0.60-0.69	1	3	4	(3.8)
0.70-0.79	1	3	4	(3.8)
0.80-0.89	-	2	2	(1.9)
0.90-0.99	-	-	-	-
1.00-1.09	-	-	-	-
1.10-1.19	-	-	-	-
1.20-1.29	-	1	1	(1.0)
Total	11	94	105	(100.0)
Weight change range (kg)	+0.46 to -0.75	+0.27 to -1.21	+0.46 to -1.21	
Mean Weight change (kg)	-0.18	-0.40	-0.38	

TABLE 7. Daily High Water Temperatures, Lower Talarik Creek, April 25 - June 30, 1973.

Date	Temp. °C	Date	Temp. °C
4/25	2	5/30	9
4/26	-	5/31	9
4/27	6	6/ 1	9
4/28	4	6/ 2	11
4/29	4	6/ 3	13
4/30	4	6/ 4	13
5/ 1	5	6/ 5	14
5/ 2	6	6/ 6	14
5/ 3	4	6/ 7	13
5/ 4	6	6/ 8	14
5/ 5	6	6/ 9	14
5/ 6	6	6/10	13
5/ 7	6	6/11	12
5/ 8	6	6/12	11
5/ 9	7	6/13	14
5/10	7	6/14	17
5/11	6	6/15	14
5/12	9	6/16	10
5/13	9	6/17	15
5/14	6	6/18	14
5/15	7	6/19	12
5/16	7	6/20	17
5/17	9	6/21	17
5/18	9	6/22	15
5/19	7	6/23	15
5/20	6	6/24	16
5/21	12	6/25	19
5/22	11	6/26	18
5/23	12	6/27	11
5/24	11	6/28	14
5/25	12	6/29	14
5/26	8	6/30	13
5/27	8		
5/28	6		
5/29	8		

TABLE 8. Movement of Nonspawning and Juvenile Rainbow Trout, Lower Talarik Creek Weir, May 4-June 30, 1973*.

Date	Migrants Upstream	Migrants Downstream	Date	Migrants Upstream	Migrants Downstream
5/ 4	3	1	6/ 3	-	6
5/ 5	3	1	6/ 4	1	21
5/ 6	-	4	6/ 5	3	7
5/ 7		3	6/ 6	-	14
5/ 8	2	-	6/ 7	-	4
5/ 9	1	8	6/ 8	-	4
5/10	3	2	6/ 9	1	2
5/11	1	5	6/10	1	2
5/12	3	16	6/11	1	5
5/13	3	18	6/12	-	14
5/14	2	3	6/13	-	8
5/15	1	17	6/14	6	34
5/16	-	14	6/15	3	16
5/17	-	14	6/16	-	5
5/18	1	5	6/17	1	2
5/19	2	7	6/18	2	6
5/20	5	18	6/19	-	31
5/21	6	16	6/20	-	5
5/22	-	22	6/21	2	12
5/23	3	18	6/22	-	1
5/24	1	-	6/23	1	10
5/25	2	20	6/24	-	4
5/26	2	9	6/25	-	5
5/27	2	2	6/26	-	4
5/28	-	4	6/27	-	2
5/29	7	-	6/28	1	1
5/30	-	13	6/29	-	1
5/31	5	-	6/30	1	2
6/ 1	4	8			
6/ 2	1	2	Total	87	478

* Recaptures counted only once in each direction.

lengths were obtained for 81 upmigrant and 474 downmigrant nonspawners (Table 9). The mean lengths of these up and downmigrants were essentially the same. The dominant downmigrant length classes (Table 9) appear to be the 225-299 (6.5%).

Nine hundred sixty rainbow trout captured during Period I (weir-954, hook and line-6) had scales legible for age determinations (Table 10). These fish ranged in age from III-XIII with age groups VII-X comprising 86.9% of the fish aged. The age groups that correspond to the dominant downmigrant length classes, mentioned in the preceding paragraph, are V-VII, respectively.

Comparing the number of VII year old nonspawning rainbow trout captured (n=41, Table 10) to the number of VII year old spawners captured (n=18, Table 6), it appears that only 12.8% of the VII year fish spawned during the 1973 spawning season. A corresponding comparison of VIII year old rainbow trout indicates that 200 (83.3%) of the 240 VIII year fish captured spawned. From this data, it appears the majority of Lower Talarik Creek rainbow trout mature during their seventh year and spawn first at age VIII.

The age-weight relationship of nonspawning rainbow trout is presented in Table 11. Of the 253 nonspawners with scales legible for age determinations, age groups VI and VII predominated. These data indicate that it takes Lower Talarik Creek rainbow trout an average of six years to reach one pound (0.45 kg) in weight.

Of 526 nonspawning rainbow trout tagged during Period I, 55 (10.5%) were recaptured during the same period. An additional 16 nonspawners tagged originally during 1972 were recaptured.

Period II:

Period II began July 1. Most of the spawners had previously migrated out of the stream either into Lake Iliamna or possibly into tributary lakes that feed Lower Talarik Creek. However, 10 outmigrant post spawners (eight females and two males) were captured at the weir during this period.

The majority of rainbow trout captured at the weir were immature. Downstream migrants outnumbered upstream migrants (Table 12) 590 to 103 (5 to 1). Again, the outmigration was somewhat sporadic until mid-August when the numbers increased markedly (the mid-August increase in downstream migrants corresponds closely with the end of sockeye salmon, Oncorhynchus nerka, spawning activities and concomitant die-off). The initial maturing fall upmigrants arrived at the weir during the last week of August.

The length frequency, and age of rainbow trout captured during this period are presented in Tables 13 and 14, respectively. Age groups V and VI comprised 98.9% of the fish aged. The older age groups were practically absent as compared with Period I (Table 10). As this period encompassed the sockeye salmon spawning migration, spawning, and subsequent die-off, it is evident that age group VIII and older rainbow trout had very little part in the competition for displaced salmon eggs and decomposing sockeye carcasses in the stream environment.

TABLE 9. Length Frequency of Immature and Nonspawning Rainbow Trout, Lower Talarik Creek Weir, May 4-June 30, 1973*.

Length Range (mm)	Up Migrants		Down Migrants	
	No.	%	No.	%
125 - 149	--		--	(0.2)
150 - 174	1	(1.2)	1	(0.2)
175 - 199	1	(1.2)	7	(1.5)
200 - 224	1	(1.2)	18	(3.8)
225 - 249	7	(8.6)	40	(8.4)
250 - 274	5	(6.3)	49	(10.3)
275 - 299	5	(6.3)	36	(7.6)
300 - 324	4	(4.9)	18	(3.8)
325 - 349	6	(7.4)	14	(3.0)
350 - 374	3	(3.7)	21	(4.4)
375 - 399	13	(16.0)	50	(10.5)
400 - 424	14	(17.3)	57	(12.0)
425 - 449	7	(8.6)	56	(11.8)
450 - 474	4	(4.9)	43	(9.1)
475 - 499	4	(4.9)	25	(5.3)
500 - 524	4	(4.9)	17	(3.6)
525 - 549	2	(2.5)	8	(1.7)
550 - 574	--		5	(1.1)
575 - 599	--		5	(1.1)
600 - 624	--		1	(0.2)
625 - 649	--		1	(0.2)
650 - 674	--		1	(0.2)
Total	81	(99.9)	474	(100.0)
Length Range (mm)	160-545		135-657	
Mean Length (mm)	372		371	

* Recaptures counted only once in each direction.

TABLE 10. Length-age frequency, Rainbow Trout, Lower Tolstris Creek Weir and Hook and Line, May 4-June 30, 1973.*

Length (mm)	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	Total
150 - 174	1	-	-	-	-	-	-	-	-	-	-	1
175 - 199	-	-	-	-	-	-	-	-	-	-	-	-
200 - 224	-	2	-	-	-	-	-	-	-	-	-	2
225 - 249	-	1	6	-	-	-	-	-	-	-	-	7
250 - 274	-	-	7	-	-	-	-	-	-	-	-	7
275 - 299	-	-	6	2	-	-	-	-	-	-	-	8
300 - 324	-	-	-	10	-	-	-	-	-	-	-	10
325 - 349	-	-	-	12	-	-	-	-	-	-	-	12
350 - 374	-	-	-	17	-	-	-	-	-	-	-	17
375 - 399	-	-	-	23	18	-	-	-	-	-	-	41
400 - 424	-	-	-	4	39	1	-	-	-	-	-	44
425 - 449	-	-	-	1	42	2	-	-	-	-	-	45
450 - 474	-	-	-	-	25	7	-	-	-	-	-	32
475 - 499	-	-	-	-	9	22	-	-	-	-	-	31
500 - 524	-	-	-	-	8	40	1	1	-	-	-	50
525 - 549	-	-	-	-	-	69	14	1	-	-	-	84
550 - 574	-	-	-	-	-	62	50	6	1	-	-	119
575 - 599	-	-	-	-	-	36	98	3	2	-	-	139
600 - 624	-	-	-	-	-	1	90	23	-	-	-	114
625 - 649	-	-	-	-	-	-	34	44	-	-	-	78
650 - 674	-	-	-	-	-	-	5	44	1	-	-	50
675 - 699	-	-	-	-	-	-	1	26	7	-	-	34
700 - 724	-	-	-	-	-	-	-	6	11	-	-	17
725 - 749	-	-	-	-	-	-	-	3	9	-	-	12
750 - 774	-	-	-	-	-	-	-	-	3	1	-	4
775 - 799	-	-	-	-	-	-	-	-	-	-	1	1
800 - 824	-	-	-	-	-	-	-	-	1	-	-	1
Total	1	3	19	69	141	240	293	157	35	1	1	960
Length Range (mm)	160	213-249	228-294	283-439	377-518	412-606	523-682	508-738	558-814	762	775	160-814
Mean Length (mm)	160	228	263	360	430	539	595	647	706	762	775	545
Mean Growth Increment (mm)	68	35	97	76	103	56	52	59	56	13		
% of Total	0.1	0.3	2.0	7.2	14.7	25.0	30.5	16.4	3.6	0.1	0.1	100.0

* Includes 6 hook and line sampled rainbow trout.

TABLE 11. Weight-Age Frequency, Nonspawning and Immature Rainbow Trout, Lower Talarik Creek Weir, May 4-June 30, 1973.

Weight (kg)	Age Group III	IV	V	VI	VII	VIII	IX	Total
0.00 - 0.24	1	1	17	8	---	--	---	27
0.25 - 0.49	-	-	1	30	3	--	---	34
0.50 - 0.74	-	-	-	27	53	1	---	81
0.75 - 0.99	-	-	-	2	49	8	---	59
1.00 - 1.24	-	-	-	--	12	15	---	27
1.25 - 1.49	-	-	-	--	3	12	1	16
1.50 - 1.74	-	-	-	--	-	3	1	4
1.75 - 1.99	-	-	-	--	-	1	3	4
2.00 - 2.24	-	-	-		-	-	1	1
Total	1	1	18	67	120	40	6	253
Weight range (kg)	0.03	0.11	0.10-0.40	0.19-0.90	0.45-1.46	0.55-1.82	1.41-2.15	0.03-2.15
Mean weight (kg)	0.03	0.11	0.18	0.45	0.79	1.17	1.74	0.73

TABLE 12. Rainbow Trout Movement, Lower Talarik Creek Weir, July 1 - August 31, 1973.

	Migrants			Migrants	
[illegible]	Upstream	Downstream	Date	Upstream	Downstream
[illegible]	1	--	8/ 5	---	---
[illegible]	-	10	8/ 6	---	1
[illegible]	1	10	8/ 7	---	1
[illegible]	-	3	8/ 8	7	14
[illegible]	2	8	8/ 9	1	2
[illegible]	2	10	8/10	---	7
[illegible]	-	8	8/11	1	57/ 8
[illegible]	2	6	8/13	2	7
[illegible]	1	6	8/14	2	10
[illegible]	-	2	8/15	1	49
[illegible]	-	--	8/16	---	65
7/13	-	6	8/17	1	44
[illegible]	-	3	8/18	---	29
[illegible]	-	2	8/19	17	6
[illegible]	1	5	8/20	8	17
[illegible]	-	4	8/21	---	12
[illegible]	-	3	8/22	---	21
[illegible]	-	4	8/23	1	11
[illegible]	-	1	8/24	---	7
[illegible]	-	14	8/25	---	4
[illegible]	-	--	8/26	---	15
[illegible]	-	2	8/27	1	---
[illegible]	-	5	8/28	---	2
[illegible]	-	1	8/29	1	---
[illegible]	-	--	8/30	---	1
[illegible]	2	1	8/31	3	---
[illegible]	2	2			
7/29	1	2	Total	103	509
7/30	2	5			
[illegible]	3	2			
[illegible]	1	4			
[illegible]	-	17			
[illegible]	-	14			
[illegible]	1	1			

TABLE 13. Length Frequency, Rainbow Trout Upmigrants and Downmigrants, Lower Talarik Creek Weir, July 1-August 31, 1973.

Length (mm)	Upmigrants		Downmigrants	
	No.	(%)	No.	(%)
75 - 99		-	1	(0.2)
100 - 124		-	1	(0.2)
125 - 149		-	2	(0.4)
150 - 174	1	(1.0)	11	(2.2)
175 - 199	6	(5.8)	23	(4.7)
200 - 224	11	(10.6)	49	(9.9)
225 - 249	21	(20.2)	131	(26.5)
250 - 274	32	(30.8)	122	(24.7)
275 - 299	18	(17.3)	83	(16.8)
300 - 324	5	(4.8)	28	(5.7)
325 - 349	3	(2.9)	8	(1.6)
350 - 374	2	(1.9)	6	(1.2)
375 - 399	-		3	(0.6)
400 - 424	1	(1.0)	5	(1.0)
425 - 449	-		2	(0.4)
450 - 474	2	(1.9)	8	(1.6)
475 - 499	-		3	(0.6)
500 - 524	-		3	(0.6)
525 - 549	-		1	(0.2)
550 - 574	1	(1.0)	1	(0.2)
575 - 599	-		1	(0.2)
600 - 624	1	(1.0)	-	
625 - 649	-		1	(0.2)
650 - 674	-			-
675 - 699	-		1	(0.2)
Total	104	(100.2)	494	(99.9)
Length Range (mm)	171-601		93-684	
Mean Length (mm)	271		265	

TABLE [illegible] Length Age Frequency, Rainbow Trout, Lower Talarik Creek weir, July 1-August 31, 1977

Length (mm)	Age Group II	III	IV	V	VI	VII	VIII	IX	X	Total
75 - 99	1	-	-	-	-	-	-	-		1
100 - 124	-	-	-	-	-	-	-	-	-	-
125 - 149	-	1	-	-	-	-	-	-	-	1
150 - 174	-	-	1	-	-	-	-	-	-	1
175 - 199	-	-	2	-	-	-	-	-	-	2
200 - 224	-	-	4	1	-	-	-	-	-	5
225 - 249	-	-	-	8	1	-	-	-	-	9
250 - 274	-	-	-	7	2	-	-	-	-	9
275 - 299	-	-	-	3	8	-	-	-	-	11
300 - 324	-	-	-	-	8	-	-	-	-	8
325 - 349	-	-	-	-	4	-	-	-	-	4
350 - 374	-	-	-	-	-	1	-	-	-	1
375 - 399	-	-	-	-	-	1	-	-	-	1
400 - 424	-	-	-	-	-	1	1	-	-	2
425 - 449	-	-	-	-	-	2	-	-	-	2
450 - 474	-	-	-	-	-	3	1	-	-	4
475 - 499	-	-	-	-	-	-	1	-	-	1
500 - 524	-	-	-	-	-	-	1	-	-	1
525 - 549	-	-	-	-	-	-	1	-	-	1
550 - 574	-	-	-	-	-	1	1	-	-	2
575 - 599	-	-	-	-	-	-	-	-	-	-
600 - 624	-	-	-	-	-	-	1	-	-	1
625 - 649	-	-	-	-	-	-	-	-	1	1
650 - 674	-	-	-	-	-	-	-	-	-	-
675 - 699	-	-	-	-	-	-	-	-	1	1
Total	1	1	7	19	23	9	7	-	2	69
Length Range (mm)	93-	141-	155-215	205-292	247-343	352-555	414-601	-	633-684	93-684
Mean Length (mm)	93	141	195	252	301	443	508	-	659	322
Mean Growth Increment (mm)	48	54	57	49	142	65	-	-		
% of Total	1.5	1.5	10.1	27.6	33.3	13.0	10.1		2.9	100.0

The weight-age of the 69 rainbow trout aged during Period II is presented in Table 15. Rainbow trout aged ranged in weight from 0.01 kg to 2.72 kg (six pounds) with a mean weight of 0.46 kg (one pound).

The date of first rainbow trout fry emergence was not identified during 1973. Incubation boxes placed in the stream failed to yield useful information. The first young-of-the-year rainbow trout captured and identified were taken July 17 in a small side channel approximately 75 yards upstream of the weir site. These fish were captured 68 days following the peak of rainbow trout spawning (May 10) but could have been spawned any time between April 15 and June 15. Fourteen of these young-of-the-year fish were measured. They ranged in length from 27 to 33 mm with a mean length of 30 mm.

Five hundred eighty-two rainbow trout were tagged during Period 11. Only three rainbow trout captured during Period I were recaptured during Period II in Lower Talarik Creek. Thirteen rainbow trout tagged at the weir during 1972 (8 during August, 4 during September, and 1 during October) were recaptured at the weir. Of the 13, 12 were passed upstream during 1972 and those same 12 were all downstream migrants when recaptured during Period II, 1973.

The Period II stream water temperatures (daily highs) are presented in Table 16. The temperatures during Period II ranged from 9° C. (48.° F.) to 20° C. (68° F.).

Stream water levels were lower during Period II than during the preceding and following periods. Observations indicated the stream bottom was algae covered throughout the period and aquatic insect emergence was at its peak.

Period III:

During late August (Table 12) and the first week of September (Table 17) rainbow trout movement in the creek was at a minimum. The bulk of the fall upmigrant run (mostly maturing fish) began arriving at the weir on September 7. The upmigration continued until September 17 when it abruptly ceased; four hundred twenty-eight maturing upmigrants were passed. The peak of the upmigration occurred September 12-14 during three days characterized by strong easterly winds that intermittently sealed off the stream mouth and backed up stream water levels significantly. Whether the changes in the stream environment brought about by the weather phenomena during that short period, triggered the upmigration or whether the two were coincidental is a matter for speculation at this time. However, there have been reports of this behavior pattern occurring in Lake Iliamna tributaries in previous years and at Lower Talarik Creek last year (1972).

The length frequency by sex of the upmigrant rainbow trout passed during Period III is presented in Table 18. One hundred sixty-two males were captured with a mean length of 619 mm. Two hundred sixty-six females were passed with a mean length of 593 mm. The male-to-female ratio was 1 to 1.6. For purposes of comparison the length frequency by sex of downmigrant rainbow trout during Period III is presented in Table 19.

Very little movement was evidenced by juvenile rainbow trout during this period (only 21 upmigrants and 26 downmigrants).

TABLE 15. Weight-age frequency, Rainbow trout, Lower Talarik Creek Weir, July 1-August 31, 1973.

Weight (kg)	Age Group II	III	IV	V	VI	VII	VIII	IX	X	Total
0.00 - 0.24	1	1	7	18	9	-	-	--	-	36
0.25 - 0.49	-	-	-	1	13	1	-	--	-	15
0.50 - 0.74	-	-	-	-	1	3	1	--	-	5
0.75 - 0.99	-	-	-	-	-	4	2	--	-	6
1.00 - 1.24	-	-	-	-	-	-	2	--	-	2
1.25 - 1.49	-	-	-	-	-	-	-	--	-	-
1.50 - 1.74	-	-	-	-	-	-	1	--	-	1
1.75 - 1.99	-	-	-	-	-	-	-	--	-	-
2.00 - 2.24	-	-	-	-	-	1	-	--	-	1
2.25 - 2.49	-	-	-	-	-	-	-	--	1	1
2.50 - 2.74	-	-	-	-	-	-	1	--	1	2
Total	1	1	7	19	9	9	7	--	2	69
Weight Range (mm)	0.01	0.04	0.04-0.11	0.06-0.25	0.18-0.57	0.38-2.00	0.62-2.51		2.34-2.72	0.01-2.72
Mean Weight (mm)	0.01	0.04	0.07	0.17	0.27	0.85	1.25	--	2.53	0.46

TABLE 16. Daily High Water Temperatures, Lower Talarik Creek, July 1 - August 31, 1973.

Date	Temp. °C	Date	Temp. °C
7/ 1	15	8/ 5	13
7/ 2	17	8/ 6	13
7/ 3	15	8/ 7	14
7/ 4	20	8/ 8	15
7/ 5	17	8/ 9	15
7/ 6	17	8/10	15
7/ 7	18	8/11	14
7/ 8	18	8/12	13
7/ 9	14	8/13	14
7/10	15	8/14	15
7/11	15	8/15	15
7/12	16	8/16	16
7/13	19	8/17	15
7/14	17	8/18	15
7/15	16	8/19	17
7/16	17	8/20	15
7/17	17	8/21	16
7/18	17	8/22	10
7/19	17	8/23	13
7/20	17	8/24	11
7/21	17	8/25	11
7/22	17	8/26	11
7/23	19	8/27	11
7/24	14	8/28	12
7/25	17	8/29	13
7/26	14	8/30	13
7/27	15	8/31	9
7/28	11		
7/29	14		
7/30	14		
7/31	14		
8/ 1	14		
8/ 2	15		
8/ 3	16		
8/ 4	18		

TABLE 17. Rainbow Trout Movement, Lower Talarik Creek Weir, September 1 - October 12, 1973.

Date	Migrants Upstream	Migrants Downstream	Date	Migrants Upstream	Migrants Downstream
9/ 1	3	-	9/26	-	1
9/ 2	-	4	9/27	-	-
9/ 3	-	-	9/28	-	5
9/ 4	1	3	9/29	-	1
9/ 5	-	-	9/30	-	13
9/ 6	1	-	10/ 1	7	5
9/ 7	10	-	10/ 2	-	-
9/ 8	1	7	10/ 3	-	-
9/ 9	6	-	10/ 4	1	-
9/10	20	1	10/ 5	-	-
9/11	5	-	10/ 6	-	-
9/12	106	-	10/ 7	-	2
9/13	96	2	10/ 8	-	-
9/14	85	1	10/ 9	-	2
9/15	44	1	10/10	-	7
9/16	42	-	10/11	-	4
9/17	21	-	10/12	-	1
9/18	-	-			
9/19	-	-			
9/20	-	1			
9/21	-	-			
9/22	-	1			
9/23	-	-			
9/24	-	1			
9/25	-	1			

TABLE 18. Length Frequency by Sex, Upmigrant Rainbow Trout, Lower Talarik Creek Weir, September 1-October 12, 1973.

Length (mm)	Males	Females	Unknown	Total
125 - 149	-	1	-	1
150 - 174	-	-	-	-
175 - 199	-	-	-	-
200 - 224	-	-	1	1
225 - 249	-	-	5	5
250 - 274	-	1	4	5
275 - 299	-	-	6	6
300 - 324	-	-	1	1
325 - 349	-	-	1	1
350 - 374	-	-	1	1
375 - 399	-	-	-	-
400 - 424	-	-	-	-
425 - 449	-	-	-	-
450 - 474	1	-	-	1
475 - 499	2	5	1	8
500 - 524	3	11	-	14
525 - 549	9	21	-	30
550 - 574	19	55	-	74
575 - 599	23	51	1	75
600 - 624	35	54	-	89
625 - 649	23	33	-	56
650 - 674	22	22	-	44
675 - 699	13	11	-	24
700 - 724	10	5	-	15
725 - 749	1	-	-	1
750 - 774	1	-	-	1
Total	162	266	21	449
Length Range (mm)	465-758	137-718	210-587	137-758
Mean Length (mm)	619	595	301	556

TABLE 19. Length Frequency by Sex, Downmigrant Rainbow Trout, Lower Talarik Weir, September 1-October 12, 1973.

Length (mm)	Males	Females	Unknown	Total
200 - 224	-	-	3	3
225 - 249	-	-	7	7
250 - 274	-	-	7	7
275 - 299	-	-	4	4
300 - 324	-	-	4	4
325 - 349	-	-	1	1
350 - 374	-	-	-	-
375 - 399	-	-	-	-
400 - 424	1	-	-	1
425 - 449	-	-	-	-
450 - 474	-	-	-	-
475 - 499	-	1	-	1
500 - 524	-	3	-	3
525 - 549	2	4	-	6
550 - 574	1	1	-	2
575 - 599	2	5	-	7
600 - 624	3	2	-	5
625 - 649	3	4	-	7
650 - 674	4	1	-	5
675 - 699	-	-	-	-
700 - 724	1	-	-	1
725 - 749	1	-	-	1
Total	18	21	26	65
Length Range (mm)	421-730	499-657	211-332	211-730
Mean Length (mm)	611	579	265	463

The length-age frequency of Period III rainbow trout appears in Table 20. Three hundred forty-four fish had scales legible for age determinations. Age groups VIII and IX comprised 74.7% of the fish aged. These are the same age groups that were most abundant on the spawning ground during Period I (Table 4). The low number of age group VII fish (Table 20) may indicate a lower percentage of age group VIII spawners during 1974 if indeed the fall immigration is a reliable indicator of the numbers and age composition of spring spawning rainbow trout (the data taken during the fall of 1972 are somewhat inconclusive due to intermittent weir operation during the fall upmigration).

The weight versus age of Period III rainbow trout is found in Table 21. Weights were obtained for all but two of the 344 rainbow trout aged. Weights ranged from 0.02 kg. (less than one ounce) to 5.17 kg (11 pounds, 6 ounces). The mean weight of Period III rainbow trout was 2.48 kg (5 pounds, 8 ounces).

Of 505 actual rainbow trout passed (recaptures counted only once) during Period III, 11 (2.2%) were recaptured during the same period. Two of these were captured by hook and line in tributary lakes that feed the stream. The others were recaptured at the weir. Forty-eight (11.3%) of the 425 maturing rainbow trout passed upstream during Period III were previously tagged. Six were tagged as maturing upmigrants during September 1972 but not recaptured as spawners during Period I, 1973. Two were tagged as maturing upmigrants during September, 1973, subsequently recaptured as spring 1973 spawners, and then recaptured again as maturing (redeveloping) fall upmigrants during Period III. Thirty-six were tagged as spawners during Period I, 1973. Three were tagged as nonspawners during Period I, 1973, and recaptured as maturing during Period III and one rainbow trout tagged June 24, 1969, as an immature 262 mm juvenile was recaptured as a 699 mm maturing male upmigrant September 1, 1973. Consecutive spawning is indicated for 44 of these fish, (assuming they survive through spring 1974) or 10.3% of the maturing fall upmigrants.

Of the nine juvenile rainbow trout recaptured during Period III, six were tagged during Period II, one was tagged during Period I, one was tagged during Period III, and one was tagged during September, 1972. Six of these juveniles were downstream bound when recaptured and three were seeking upstream areas.

Two surveys conducted during September indicated rainbow trout were present in the tributary lakes that feed Lower Talarik Creek. On September 8, five rainbow trout rainging in length from 262-538 mm were captured using hook and line in the uppermost lake on the West fork. These fish had not been previously tagged indicating they had not been passed upstream through the weir. Thus it is believed that these fish spent the summer either in the upper stream or tributary lake areas. On September 30, six rainbow trout were captured in the lowermost tributary lake of the East fork. These fish ranged in length from 270-636 mm, although five were greater than 508 mm (20 inches) in length. Of the five, three were previously tagged and passed during the Period III upmigration at the weir. The other three were not tagged previously indicating they may have spent the summer in the upper reaches of the East fork.

TABLE 20. Length-Age Frequency, Rainbow Trout, Lower Talarik Creek Weir, September 1-October 12, 1975

Length (mm)	Age Group III	IV	V	VI	VII	VIII	IX	X	XI	Total
125 - 149	1	-	-	-	-	-	-	-	-	1
150 - 174	-	-	-	-	-	-	-	-	-	-
175 - 199	-	-	-	-	-	-	-	-	-	-
200 - 224	-	2	1	-	-	-	-	-	-	3
225 - 249	-	-	6	-	-	-	-	-	-	6
250 - 274	-	-	5	-	-	-	-	-	-	5
275 - 299	-	-	4	1	-	-	-	-	-	5
300 - 324	-	-	1	1	-	-	-	-	-	2
325 - 349	-	-	-	-	-	-	-	-	-	-
350 - 374	-	-	-	1	-	-	-	-	-	1
375 - 399	-	-	-	-	-	-	-	-	-	-
400 - 424	-	-	-	-	-	-	-	-	-	-
425 - 449	-	-	-	-	-	-	-	-	-	-
450 - 474	-	-	-	-	-	-	-	-	-	-
475 - 499	-	-	-	-	3	1	-	-	-	4
500 - 524	-	-	-	-	8	2	-	-	-	10
525 - 549	-	-	-	-	9	12	1	1	-	23
550 - 574	-	-	-	-	-	34	14	-	-	48
575 - 599	-	-	-	-	-	34	19	-	1	54
600 - 624	-	-	-	-	-	28	35	5	1	69
625 - 649	-	-	-	-	-	5	38	5	1	49
650 - 674	-	-	-	-	-	1	25	11	1	38
675 - 699	-	-	-	-	-	-	7	6	4	17
700 - 724	-	-	-	-	-	-	-	7	-	7
725 - 749	-	-	-	-	-	-	1	-	-	1
750 - 774	-	-	-	-	-	-	-	-	1	1
Total	1	2	17	3	20	117	140	35	9	344
Length Range (mm)	137-	210-215	211-311	292-360	491-547	498-656	536-730	535-724	597-758	137-758
Mean Length (mm)	137	213	262	323	522	581	623	663	670	584
Mean Growth Increment (mm)	76	19	61	199	59	42	40	7		
% of Total	0.3	0.6	4.9	0.9	5.8	34.0	40.7	10.2	2.6	100.0

TABLE 21. Weight-Age Frequency, Rainbow Trout, Lower Talarik Creek Weir, September 1-October 1[illegible], 1973.

Weight (kg)	Age Group III	IV	V	VI	VII	XIII	IX	X	XI	Total
0.00 - 0.24	1	2	13	1	-	-	-	-	-	17
0.25 - 0.49	-	-	3	2	-	-	-	-	-	5
0.50 - 0.74	-	-	-	-	-	-	-	-	-	-
0.75 - 0.99	-	-	-	-	-	-	-	-	-	-
1.00 - 1.24	-	-	-	-	-	-	-	-	-	-
1.25 - 1.49	-	-	-	-	4	3	-	-	-	7
1.50 - 1.74	-	-	-	-	12	1	-	1	-	14
1.75 - 1.99	-	-	-	-	3	17	3	-	-	23
2.00 - 2.24	-	-	-	-	1	39	20	-	-	60
2.25 - 2.49	-	-	-	-	-	23	14	1	1	39
2.50 - 2.74	-	-	-	-	-	21	23	-	-	44
2.75 - 2.99	-	-	-	-	-	9	30	5	1	45
3.00 - 3.24	-	-	-	-	-	3	22	8	-	33
3.25 - 3.49	-	-	-	-	-	1	15	3	2	21
3.50 - 3.74	-	-	-	-	-	-	7	6	1	14
3.75 - 3.99	-	-	-	-	-	-	3	3	-	6
4.00 - 4.24	-	-	-	-	-	-	1	2	3	6
4.25 - 4.49	-	-	-	-	-	-	-	2	-	2
4.50 - 4.74	-	-	-	-	-	-	1	4	-	5
4.75 - 4.99	-	-	-	-	-	-	-	-	-	-
5.00 - 5.24	-	-	-	-	-	-	-	-	1	1
Total	1	2	16	3	20	117	139	35	9	342
Weight Range (kg)	.02	.05-.08	.05-.32	.22-.36	1.27-2.08	1.37-3.28	1.75-4.54	1.60-4.54	2.31-5.17	0.02-5.17
Mean weight (kg)	0.02	0.07	0.16	0.30	1.64	2.29	2.81	3.47	3.63	2.48

The water temperatures (daily highs) for Lower Talarik Creek during Period III are presented in Table 22. The high temperatures ranged from +33° C. (91° F.) to -1° C (30° F.), super cooled surface waters. During the peak of upmigration (September 12-14) the daily highs were in the 7°-8° C. (45°-46° F.) range.

The weir was disassembled and ceased being a fish barrier on October 12, 1973.

General Season Comments

A total of 2,890 rainbow trout were captured at the Lower Talarik Creek weir during 1973 (counting the recaptures once each time they were passed). Of these, 2,425 were tagged during the season.

A summary of the external condition of the rainbow trout captured at the weir is presented in Table 23. Of the 2,890 fish passed, 2,502+ were passed without weir-induced injury (although 2,425 of these had a small tagging wound inflicted on them during sampling). Sixty-three fish died either in the capture pens or during subsequent handling. The majority of these deaths occurred during May and June when the fish were in a weakened or dying state following the rigors of spawning. Eighty-five rainbow trout (2.9%) showed some degree of scaling. Seventy-four (2.6%) had either deformed, split, or worn caudal fins. Over all, rainbow trout were passed through the weir with very little external damage. The figures in Table 23 represent the maximum damage that could be attributed to the weir as all obvious injuries whether weir caused or not were included. Some of the mouth injuries, snout injuries, eye injuries, and some of the scaling were caused by anglers. Net marks and scars caused by predacious fish and mammals were observed and included under the categories "healed scars" and "sores and lacerations".

Four hundred fifty-six rainbow trout tagged originally at Lower Talarik Creek were recaptured during 1973. One of these was tagged during 1969, while the others were tagged during 1970 (2), 1971 (1), 1972 (81), and 1973 (277). A total of 1,614 rainbow trout were tagged during 1972, so the 81 recaptures represents a 5.0% recovery. Two hundred and seventy-seven recaptures of rainbow trout tagged during 1973 (2,425) represents an 11.4% recovery. Twelve of the 456 total recaptures occurred outside the Lower Talarik Creek drainage while the others were recovered within the drainage. Of those recaptured outside the drainage, five were caught at Igiugig in the Kvichak River, four were captured in the Newhalen River, two were taken in Belinda Creek and one was reported from Upper Talarik Creek. A current summary of Lower Talarik Creek rainbow trout movements within the Lake Iliamna-Kvichak River drainage, based on tag recovery data is presented in Figure 3.

The mean length of rainbow trout by age and time period is presented in Table 24. The number of age groups II-IV fish sampled during 1973 are insufficient to support statements concerning growth. Comparing the Period I and Period III mean lengths of age group V and VI fish it appears that growth was minimal for fish of these age groups captured in the stream. However, these age groups (especially the VI year olds) were scarce in the stream after a Period of emigration into Lake Iliamna.

TABLE 22. Daily High Water Temperatures, Lower Talarik Creek, September 1 - October 13, 1973.

Date	Temp. °C	Date	Temp. °C
9/ 1	12	9/26	7
9/ 2	13	9/27	4
9/ 3	13	9/28	9
9/ 4	12	9/29	5
9/ 5	13	9/30	5
9/ 6	12	10/ 1	5
9/ 7	10	10/ 2	4
9/ 8	12	10/ 3	5
9/ 9	12	10/ 4	5
9/10	12	10/ 5	5
9/11	9	10/ 6	5
9/12	7	10/ 7	4
9/13	8	10/ 8	4
9/14	8	10/ 9	4
9/15	7	10/10	3
9/16	9	10/11	2
9/17	9	10/12	2
9/18	10	10/13	-1
9/19	10		
9/20	9		
9/21	8		
9/22	10		
9/23	8		
9/24	7		
9/25	7		

TABLE 23. Injury Summary for Rainbow Trout Passed at the Lower Talarik Creek Weir, May 4-October 12, 1973

	Months													
	May		June		July		August		September		October		**	% of Total
	Up	Down	Up	Down	Up	Down	Up	Down	Up	Down	Up	Down	Totals	Passage
Nose and snout injuries	5	8	1	12	-	1	-	-	3	-	-	1	31	1.1%
Mouth injured or deformed	4	17	2	3	-	2	1	4	8	3	-	-	44	1.5%
Opercle & gill injuries	2	2	-	4	-	-	-	-	2	1	-	-	11	0.4%
Eye injuries	3	3	2	-	-	-	-	1	1	2	1	1	14	0.5%
Head injuries	1	2	1	3	-	-	-	-	-	2	-	-	9	0.3%
Fins damaged	-	9	-	13	1	1	1	1	2	1	-	-	29	1.0%
Caudal damaged	2	18	-	21	1	5	2	15	4	5	-	1	74	2.6%
Sores and lacerations	2	7	1	11	1	2	1	3	-	1	-	-	29	1.0%
Fungus present	2	8	-	24	-	1	1	6	-	5	-	1	48	1.7%
Tag wound infected	-	1	-	-	-	-	-	-	1	1	-	1	4	0.1%
Lamprey scars	3	3	-	1	-	-	-	-	-	-	-	-	7	0.2%
Old tagging scars	2	5	-	5	-	1	-	1	2	1	-	1	18	0.6%
Healed scars on body	6	4	-	4	2	3	-	1	6	-	1	-	27	0.9%
Internal injuries	3	15	-	4	-	-	-	-	-	-	-	-	22	0.8%
Skeletal deformities	2	8	-	1	-	-	-	-	-	-	-	-	11	0.4%
1-5% scaling	1	-	-	3	-	2	2	2	7	4	-	1	22	0.8%
6-10% scaling	-	1	-	4	-	3	1	5	-	2	-	-	16	0.6%
11-15% scaling	1	3	-	1	-	-	1	1	-	2	-	1	10	0.3%
16-20% scaling	-	1	-	2	-	-	-	-	-	-	-	-	3	0.1%
21-30% scaling	1	1	-	2	-	-	1	2	1	-	-	-	8	0.3%
31-50% scaling	-	4	1	3	-	-	1	2	-	1	-	-	12	0.4%
Greater than 50% scaling	-	3	2	2	-	-	2	4	-	1	-	-	14	0.5%
Fish will probably die	2	6	4	7	-	-	3	2	-	2	-	1	27	0.9%
Fish dead	4	27	1	17	-	1	2	8	3	-	-	-	63	2.2%
Fish passed without injury	318	831	26	333	17	116	70	338	401	29	8	15	2,502	86.6%
Total rainbow trout passed	354	929	33	430	23	134	83	372	453	41	8	21*	2,890	

* Includes 9 rainbow trout passed for which direction of travel wasn't recorded.

** Fish having more than one injury were counted in each injury category that applied to them.

Note: Fish tagged previously were counted each time they were passed.

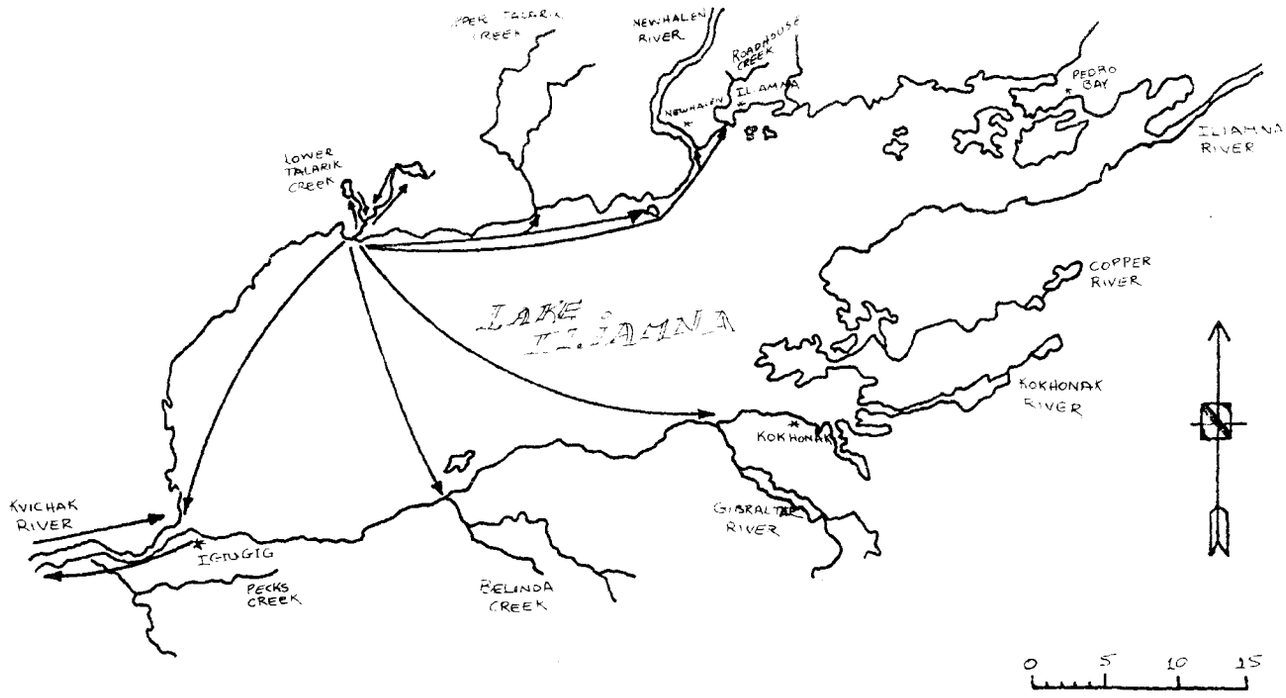

FIGURE 3. Rainbow Trout Migratory Patterns in Lake Iliamna From Tag Regovery Information - 1973.

TABLE 24. Mean Length by Age and Time Period, Rainbow Trout, Lower Talarik Creek Weir, May 4-October 12, 1973.

Age Group	Period I		Period II		Period III	
	No. Aged	Mean Length (mm)	No. Aged	Mean Length (mm)	No. Aged	Mean Length (mm)
II	-	-	1	93	-	-
III	1	160	1	141	1	137
IV	3	228	7	195	2	213
V	19	263	19	253	17	262
VI	69	360	23	301	3	314
VII	141	436	9	443	20	522
VIII	240	539	7	508	117	581
IX	293	595	-	-	140	623
X	157	647	2	659	35	663
XI	35	706	-	-	9	670
XII	1	762	-	-	-	-
XIII	1	775	-	-	-	-
Total	960	545	69	322	344	584

growth of these age groups in the lake could have been substantial. The mean length (262 mm) of Period III age group V fish is substantially less than the mean length (360 mm) of Period I age group VI fish indicating that the Period III age group V fish have considerable growing to do over the winter if they are going to attain the same mean length as the 1973 Period I VI year fish. Age group VII fish spent most of the mid summer (Period II) in Lake Iliamna and show a mean growth increment of 86 mm between Periods I and III. They average 17 mm less in length than the Period I VIII year olds. Age group VIII rainbow trout show a 42 mm mean growth increment between Periods I and III. Age group IX fish grew an average of 28 mm over the summer while age group X fish gained an average of 16 mm. Data for age groups XI-XIII are incomplete or insufficient to support comment.

A comparison of the mean lengths of rainbow trout spawners and maturing rainbow trout by age, sex, and time period is presented in Table 25. This table indicates that by age group male rainbow trout attain a slightly greater length than females. Age groups VIII-XI male spawners were longer on the average than female spawners of the same age groups. Age groups VII-IX maturing males, were on the average, longer than maturing females of the same age groups. The mean lengths by age and sex of Period III maturing rainbow trout are less in all cases than the corresponding mean lengths by age and sex of the next older age group in the Period I fish. This indicates one of two things; (1) either the fall upmigrant rainbow continue to grow substantially through the winter under the ice, or (2) the 1974 spring spawning population by age group will average several millimeters less in length than the corresponding 1973 spawners, reflecting a decrease in growth.

The mean weight by age, maturity, and time period of rainbow trout captured during 1973 at Lower Talarik Creek is presented in Table 26. The data are not too significant until the weights of Periods I, II, and III age group VII rainbow trout are compared. During Period III, age group VII maturing fish averaged 1.64 kg (3 pounds, 10 ounces). Immature and spent VII year olds (Period I) averaged 0.79 kg (1 pound 12 ounces), and 0.98 kg (2 pounds, 3 ounces), respectively. Thus these Period III maturing VII year olds had gained from 1.85 kg (1 pound, 7 ounces-1 pound, 14 ounces) during the summer. Spent age group VIII fish (Period I) weighed an average of 1.48 kg while immatures weighed 1.17 kg. The maturing VIII year olds captured during Period III averaged 2.29 kg, an increase of 0.81-1.12 kg. Age group IX rainbow trout captured during Period III averaged 2.81 kg. Age group IX fish ranged in weight from 1.74-2.32 kg during Period I.

Period III maturing rainbow trout by age group weighed nearly the same as the Period I ripe rainbow trout of the next older age group. One would expect these fall fish to weigh more than the spring prespawners of the next older age group and over the winter period one would expect these fish to lose weight. If the 1973 Period III maturing fish lose weight during the winter of 1973-74, they will weigh less than the Period I, 1973, prespawners. This would be another indication that growth was less rapid during 1973 than 1972.

Comparing the mean weights of Periods I-III rainbow trout (Table 26), it appears that fish of the older age groups (VII and older) are in the best condition weight-wise during Period III.

TABLE 25. Mean Length by Age, Sex, and Time Period of Mature and Maturing Rainbow Trout, Lower Talarik Creek Weir, May 4-October 12, 1973.

Age Group	Period I Males No.	Period I Males Mean Length (mm)	Period I Females No.	Period I Females Mean Length (mm)
VI	-	-	1	336
VII	10	440	8	480
VIII	35	553	165	547
IX	47	602	240	594
X	47	664	110	640
XI	11	737	24	692
XII	1	762	-	-
XIII	-	-	1	775
Total	151	610	549	592

Age Group	Period II Males No.	Period II Males Mean Length (mm)	Period II Females No.	Period II Females Mean Length (mm)
VI	-	-	-	-
VII	-	-	2	468
VIII	-	-	1	515
IX	-	-	-	-
X	1	633	1	684
XI	-	-	-	-
XII	-	-	-	-
XIII	-	-	-	-
Total	1	633	4	534

Age Group	Period III Males No.	Period III Males Mean Length (mm)	Period III Females No.	Period III Females Mean Length (mm)
VI	-	-	-	-
VII	7	525	12	522
VIII	43	595	73	573
IX	56	636	84	615
X	13	683	22	651
XI	3	714	6	647
XII	-	-	-	-
XIII	-	-	-	-
Total	122	622	197	599

TABLE 26. Mean Weight by Age, Maturity, and Time Period, Rainbow Trout, Lower Talarik Creek Weir, May 4-October 12, 1975.

	Age Group	Immature No.	Immature Mean Weight (kg)	Ripe No.	Ripe Mean Weight (kg)	Spent No.	Spent Mean Weight (kg)	Age Group	Immature No.	Immature Mean Weight (kg)	Ripe No.	Ripe Mean Weight (kg)	Spent No.	Spent Mean Weight (kg)
Period I	II	-	-	-	-	-	-	VIII	40	1.17	60	1.82	162	1.48
	III	1	0.03	-	-	-	-	IX	6	1.74	87	2.32	227	1.87
	IV	1	0.11	-	-	-	-	X	-	-	31	2.81	136	2.42
	V	18	0.18	-	-	-	-	XI	-	-	4	3.29	32	3.11
	VI	67	0.45	-	-	1	0.41	XII	-	-	-	-	1	3.62
	VII	120	0.79	3	1.17	16	0.98	XIII	-	-	1	4.85	1	3.64

	Age Group	Immature No.	Immature Mean Weight (kg)	Ripe No.	Ripe Mean Weight (kg)	Spent No.	Spent Mean Weight (kg)	Age Group	Immature No.	Immature Mean Weight (kg)	Ripe No.	Ripe Mean Weight (kg)	Spent No.	Spent Mean Weight (kg)
Period II	II	1	0.01	-	-	-	-	VIII	6	1.28	-	-	1	1.10
	III	1	0.04	-	-	-	-	IX	-	-	-	-	-	-
	IV	7	0.07	-	-	-	-	X	-	-	-	-	2	2.53
	V	19	0.17	-	-	-	-	XI	-	-	-	-	-	-
	VI	23	0.27	-	-	-	-	XII	-	-	-	-	-	-
	VII	7	0.87	-	-	2	0.77	XIII	-	-	-	-	-	-

	Age Group	Immature No.	Immature Mean Weight (kg)	Ripe No.	Ripe Mean Weight (kg)	Spent No.	Spent Mean Weight (kg)	Age Group	Immature No.	Immature Mean Weight (kg)	Ripe No.	Ripe Mean Weight (kg)	Spent No.	Spent Mean Weight (kg)
Period III	II	-	-	-	-			VIII	-	-	117	2.29		
	III	1	0.02	-	-			IX	-	-	139	2.81		
	IV	2	0.07	-	-			X	-	-	35	3.47		
	V	16	0.16	-	-			XI	-	-	9	3.63		
	VI	3	0.30	-	-			XII	-	-	-	-		
	VII	-	-	19	1.64			XIII	-	-	-	-		

Incidental Species

During the May 4 to October 12, 1973, field season several species of fish, in addition to rainbow trout, were captured at the Lower Talarik Creek weir. Incidental fish passage by month is presented in Table 27.

Arctic grayling, Thymallus arcticus, were migrating upstream to spawn during late April and early May. Following spawning, these fish evidently remained above the weir through the summer months as no conspicuous downmigration was observed. Grayling fry were observed first on June 19 in the lagoon below the weir. During late September and early October a large number of grayling migrated back downstream.

Downmigrant round whitefish, Prosopium cylindraceum, outnumbered upmigrants five to one. An increase in the downmigration was observed during September.

Downmigrant Arctic char/Dolly Varden, Salvelinus alpinus/malma outnumbered upmigrants five to one. A majority of the downmigrants were captured during August following the sockeye salmon die-off.

Sockeye salmon smolts were captured in the downstream migrant trap during May and June. Their main downmigration appears to have occurred during June. The spawning migration of adult sockeye salmon occurred during July and August. By late August, spawning was over above the weir although activity continued into September in the stream area below the weir. An estimated 2,500 sockeye salmon spawned downstream of the weir.

A small upmigration of coho salmon, Oncorhynchus kisutch, occurred during late August and early September. These fish were later observed pairing up in the uppermost reaches of the East Fork. The peak of their spawning probably occurred during the first two weeks of October.

Long nose suckers, Catostomus catostomus were our constant companions at the weir. They spawned during late May and early June in large numbers in the lower half mile of stream below the weir. Males were easily identified from females by the granular growths (sandpaper consistency) of the lower lobe of their caudal fins.

Pond smelt, Hypomesus olidus, spawned during late May. American brook lampreys, Lampetra lamottei, spawned during mid-May in gravel side channels above the weir, and northern pike, Esox lucius, also spawned during May in slow water marshy areas.

Three-spine sticklebacks, Gasterosteus aculeatus, were observed spawning during June and early July. Many were infested with a cestode, Schistocephalus sp.

Sculpins were also present but no observations regarding them were recorded.

TABLE 27. Fish Passage Totals by Month - Incidental Species, Lower Talarik Creek Weir, May 4-October 12, 1973.

Species	Months												Total	
	May		June		July		August		September		October			
	Up	Down	Up	Down	Up	Down	Up	Down	Up	Down	Up	Down	Up	Down
Arctic grayling *Thymallus arcticus*	1,460	541	137	164	44	48	-	15	26	956	-	109	1,667	1,833
Round whitefish *Prosopium cylindraceum*	14	13	19	55	17	85	2	30	23	227	-	12	79	422
Dolly Varden/Arctic char *Salvelinus malma/alpinus*	8	10	1	8	4	6	11	89	-	8	-	1	24	122
Sockeye salmon smolt *Oncorhynchus nerka*	-	238	-	416	-	7	-	1	-	-	-	-	-	662
Sockeye salmon adults	-	-	-	-	4,692	-	1,090	-	-	-	-	-	5,782	-
Chum salmon *Oncorhynchus keta*	-	-	-	-	1	-	2	-	-	-	-	-	3	-
Coho salmon *Oncorhynchus kisutch*	-	-	-	-	-	-	12	-	97	-	-	-	109	-
Northern pike *Esox lucius*	3	8	-	1	-	-	1	-	-	2	-	-	4	11
Longnose sucker *Catostomus catostomus*	1,207	2,323	1,051	1,103	1,425	185	142	31	165	163	-	6	3,990	3,811

Creel Census

The sport fishing season in the Bristol Bay Trophy Fish area opened June 12. Anglers visiting Lower Talarik Creek from opening day through October 12 were interviewed to determine creel data. A summary by month of angler effort and success is presented in Table 28. Angler success (rainbow trout catch/hour) was greatest during June. Angler effort (number of angler hours) was greatest during September. During the season, anglers caught an estimated 964 rainbow trout and kept an estimated 126.

Of an estimated 126 rainbow trout retained, 36 were measured by Fish and Game personnel. These ranged in length from 432-785 mm with a mean length of 597 mm. Thirty-four of the 36 were greater than 20 inches in length.

The largest rainbow trout weighed by Department personnel during the 1973 field season was a 6.52 kg (14 pound, 6 ounce) angler-retained fish.

The comparative effectiveness of terminal gear types used by anglers during 1973 is presented in Table 29. Anglers using lures spent more fishing hours at Lower Talarik Creek than did anglers using flies. However, anglers using flies caught more rainbow trout than anglers using lures and the fly fishermen's catch/hour was twice that of anglers using lures.

DISCUSSION

The Lower Talarik Creek weir again proved an effective means for capturing migrating rainbow trout. Accurate estimates of the spawning population, numbers of juvenile downmigrants, and maturing fall upmigrants were obtained.

Spawning ground surveys and weir passage totals indicate the peak of rainbow trout spawning occurred May 10 in Lower Talarik Creek during 1973 as opposed to June 6 during 1972 (a difference of 27 days). The earlier 1973 spawning peak is attributed to warmer weather conditions that caused stream ice to break up in late April rather than mid-May. It appears that rainbow trout spring spawning activity may be closely tied to increasing stream water temperatures.

A total of 987+ rainbow trout spawned during 1973 in Lower Talarik Creek. The majority of these fish were age VII or older, indicating angler pressure and other mortality factors have not reduced the older age groups acceptable levels. While it has not yet been determined what the optimum spawning escapement levels are for Lower Talarik Creek, a population including 987 spawners indicates that Department regulatory actions have been accomplished prior to the depletion of this run.

Comparisons of Period I and Period III mean lengths indicate growth during 1973 may have been slower than during 1972. The mean lengths of fish captured in the fall of the year should approximate the mean lengths of fish of the next older age group captured in the spring, unless considerable growth occurs during the extremely cold winter period. The Period III Lower Talarik Creek rainbow trout by age group were shorter than the Period I rainbow trout of

TABLE 28. Creel Census Totals by Month, Lower Talarik Creek, June 12-October 12, 1973.

	Months					Season's Total
	June	July	August	September	October	
Total angler days observed	85	33	38	194	31	381
Total angler days checked	37	15	18	135	21	226
% angler days checked	43.5	45.5	47.4	69.6	67.8	59.3
Angler hours expended (actual)	172	51	42	568	102	935
Angler hours expended (expanded)	395	112	89	816	151	1,563
No. rainbow trout caught (actual)	261	25	25	146	31	488
No. rainbow trout caught (expanded)	600	55	53	210	46	964
Rainbow trout catch/hour*	1.52	0.49	0.60	0.27	0.30	0.62
Rainbow trout retained (actual)	21	5	0	40	7	73
Rainbow trout retained (expanded)	48	11	0	57	10	126
Rainbow trout retained/caught	1/13	1/5	0	1/4	1/5	1/8

* Computed using expanded figures.

TABLE 29. Comparative Effectiveness of Terminal Gear Used by Anglers, Lower Talarik Creek, June 12-October 12, 1973.

Angler Catch and Effort	Terminal Gear			
	Flies	Lures	Other*	Total
Total angler hours	346	400	189	935
Total rainbow trout caught	268	143	77	488
Rainbow trout catch/hour	0.77	0.36	0.41	0.52
Total rainbow trout retained	27	39	7	73
Rainbow trout retained/hour	0.08	0.10	0.04	0.08

* Some anglers used both flies and lures during a single day and the gear type was not recorded for several anglers. As the totals for each tackle type were not easily separable, or were unknown in these cases, these anglers' effort and results were included under "other" and not included in the "flies" or "lures" categories.

the next older age group. Perhaps the small sockeye salmon runs (1972 and 1973) influenced growth as rainbow trout feed on salmon eggs, fry, and decomposing carcasses. If this is the case, comparisons of the coefficient of condition of rainbow trout by year with the Kvichak drainage sockeye salmon escapements should yield corresponding fluctuations.

During 1972, 1,614 rainbow trout were tagged in Lower Talarik Creek. A total of 113 (7%) have been recaptured through the 1973 field season. During 1973, 2,425 rainbow trout were tagged and 277 (11.4%) were recaptured.

Angler use continued at approximately the same level as during 1972. Comparative expanded seasons' creel census data collected for the years 1971 through 1973 are shown in Table 30.

TABLE 30. Comparative Expanded Seasons' Creel Census Data Collected for the Years 1971-1973.

Year	Fishermen		Hours	Rainbow Trout Catch	Catch/ Angler Hour	Rainbow Trout Retained
	Observed	Checked				
1971	587	414	2,314	2,045	0.88	388
1972	316	245	1,652	760	0.46	143
1973	381	226	1,563	964	0.62	126

Anglers using flies caught twice the number of fish per hour (0.77) that anglers using lures caught (0.36). This compares closely with the data collected at Copper River during 1972 (Siedelman, Cunninghma, Russell, 1972).

LITERATURE CITED

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